

Third West Weekly Report Shepherd, Michael

Joyce Ackerman, 'Craig Barnitz (cbamitz@utah.gov)' 04/05/2012 09:03 AM

Hide Details

From: "Shepherd, Michael" < Michaei. Shepherd@PacifiCorp.com>

To: Joyce Ackerman/R8/USEPA/US@EPA, "'Craig Barnitz (cbarnitz@utah.gov)" <cbamitz@utah.gov>

7 Attachments

Weekly Report 03-26 to 03-30-12.pdf Third West Weekly Log 2011-13.pdf 232471-1.pdf 232590-1.pdf 232690-1.pdf

232807-1.pdf 232930-1.pdf

Joyce & Craig,

Attached are the reports for the week of March 26, 2012.

We had positive hits of chrysotile Tuesday-Friday last week. All one hit each day.

Please let me know if you have any questions.

Thanks,

Mike Shepherd Project Manager Rocky Mountain Power - Major Projects 801.220.4584 Office 801.631.1310 Cell 801.220.2797 Fax michael.shepherd@pacificorp.com





3RD WEST SUBSTATION REMEDIATION PROJECT **HEALTH SAFETY MANAGER (HSM)**

		<u>DAILY CHECKLIST</u>
DATE	:	03/26/11
~		
	<u>neral</u>	
		area Health and Safety Inspection
NA	L	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day
NA		Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	\	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	\	Complete Employee Meeting Record Form B (where applicable)
NA	\	Document required Respirator Training completion with Form H
NA		Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA		Confirm return of waste material manifest documents for each load with site
		manager.
NA .	Compl	ete all CSHASP Forms (for applicable activities planned for that day)
	NA	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
	\square	Exclusion zone operations are practiced as instructed.
	لينا	Decontamination unit is working properly.
		✓ Workers are using decontamination unit as instructed.
		✓ Workers are using decontamination unit as instituted. ✓ Workers use personal protective equipment properly.
		workers use personal protective equipment property.
\square		Set air samples at cardinal compass points around exclusion zone. Check
		throughout the day to ensure proper operation.
		Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
. ☑	٠	Review sign-in/sign-out log throughout and at the end of the workday.
Ø		Secure the site at the end of the workday
<u>Sa</u>	mpling	
NA ☑	Soil Co	onfirmation sampling for any newly excavated areas Stationary Air Monitoring during contaminated soil removal around the perimeter of the
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NA So	oil Confirmation sampling for any newly excavated areas
I	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil
NA	removal Digitally photograph each sample location and at any place field sampling personnel





\square	Electronically file photo files into the on-site database
$\overline{\mathbf{V}}$	Complete Field Documentation
$\overline{\mathbf{Z}}$	Field Sample Data Sheets (FSDS)
☑.	Logbook
	On-site computer database
	Label each sample media with a unique number
	Seal sample(s) in zip lock plastic bags
Ø	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
\square	Electronically file sample reports into on-site database



Project: 3rd West Sub Station	Date: 03/26/12		
Location: 3rd West, 1st South, SLC	Job Number:		
Survey Conducted By: Justin Kargis	Title:		

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.	2		х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.		=	x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			х	-
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	1
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

. .

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			х	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			х	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			9 4
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	x			
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and	
Standard	Title				Date	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x				
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.		Q . E	х		
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	X				
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x				
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x		
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	X				ar.
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x				
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.	*		х		
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х		
1926.602 (a)	Bi-directional earth moving equipment shall have audible alarms.	x				

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	, , ,
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Exclusion zone was rearranged to include two areas. The area just inside the north gate on 1st south was zoned off in order for Newman to dig out the hole for the 12.5kV vaults. As the native material was excavated out of this site, it was loaded and hauled by dump truck over to the stockpile in the original EZ. This created a situation for temporary work near exposed native material by workers that were not suited up, but this was kept to a minimum. Once excavations were completed, this zone was fenced off. CVE line crew continued working on structure steel componentry. They also prepared to terminate the 46kV lines at the south getaway area.

CVE fabricators were off site today.

Weather was cool, and overcast with temperatures in the low 60's with gusty winds. A few showers in the morning and early afternoon lasted for 10-15 minutes.



NA.

determined necessary



3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

		DAIL I CHECKLIST
DATE	:	03/27/11
Ge	neral	
		area Health and Safety Inspection
NA		Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
		activities for the day
NA	\	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	\	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	\	Complete Employee Meeting Record Form B (where applicable)
NA	1	Document required Respirator Training completion with Form H
NA		Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA		Confirm return of waste material manifest documents for each load with site
1 11 L		manager.
NA	Compl	ete all CSHASP Forms (for applicable activities planned for that day)
	NA	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
	$ \overline{\mathbf{V}} $	Exclusion zone operations are practiced as instructed.
		☐ Decontamination unit is working properly.
		✓ Workers are using decontamination unit as instructed.
		☑ Workers use personal protective equipment properly.
☑		Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
		Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
		Review sign-in/sign-out log throughout and at the end of the workday.
☑		Secure the site at the end of the workday
<u>Sa</u>	m p lin g	
NA	Soil C	onfirmation sampling for any newly excavated areas
d		Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
N/	4	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil

Digitally photograph each sample location and at any place field sampling personnel





Ø	Electronically file photo files into the on-site database
	Complete Field Documentation
\square	Field Sample Data Sheets (FSDS)
\square	Logbook
\square	On-site computer database
\square	Label each sample media with a unique number
\square	Seal sample(s) in zip lock plastic bags
Ø	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
Ø	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
Ø	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
囟	Electronically file sample reports into on-site database



Project: 3rd West Sub Station	Date: 03/26/12		
Location: 3rd West, 1st South, SLC	Job Number:		
Survey Conducted By: Justin Kargis	Title:		

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	,
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			Х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			х	
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.	3		х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			х	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х	2		

		In Compliance	Out of Compliance	♥ Z Corrective Action Taken	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х	.1		
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			х	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			х	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			X	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	х			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			
1926.102 (a) (1)	Eye and face protection shall be provided.	х			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	

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		In Compliance	Out of Compliance	Out of Compliance N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	х			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x		4 1	, A
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	х			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.		,	x	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	х			,
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	,
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a)	Bi-directional earth moving equipment shall have audible alarms.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			х	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Exclusion zone was again rearranged to include the two areas from yesterday. Today, excavation was minimized and no material was transported to the stockpile. A small pile of native was placed adjacent to the vault hole. Newman placed the 12.5kV vaults on a layer of gravel in the hole. Occasional and temporary access by various workers into the immediate vicinity of these excavations took place and was minimized in order to support the vault placement. Newman workers were suited up for the work inside the hole as they were yesterday.

CVE line crews worked on various tasks and attachment of equipment to structure steel. They also worked on terminating the 46kV lines at the getaway structure and splicing inside the vaults. CVE fabricators were not on site today.

Weather was mild, dry, and slightly breezy with high clouds. Temperatures from the high 30's to around 60.



determined necessary



3RD WEST SUBSTATION REMEDIATION PROJECT **HEALTH SAFETY MANAGER (HSM)**

		DAILY CHECKLIST
DATE	/ :	03/28/11
Ca	nanal	
	neral Work o	area Health and Safety Inspection
NA		Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
172	1	activities for the day
NA	\	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	\ .	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	1	Complete Employee Meeting Record Form B (where applicable)
NA	\	Document required Respirator Training completion with Form H
NA		Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA		Confirm return of waste material manifest documents for each load with site
		manager.
NA	Compl	ete all CSHASP Forms (for applicable activities planned for that day)
	NA	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
		Exclusion zone operations are practiced as instructed.
		☑ Decontamination unit is working properly.
		☑ Workers are using decontamination unit as instructed.
		☑ Workers use personal protective equipment properly.
		Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
		Observe control measures for dust and fugitive materials i.e. watering excavation
		sites and track out prevention.
✓		Review sign-in/sign-out log throughout and at the end of the workday.
Ø		Secure the site at the end of the workday
<u>Sa</u>	mpling	
NA	Soil Co	onfirmation sampling for any newly excavated areas
\square		Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
NA	A	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA.	4	Digitally photograph each sample location and at any place field sampling personnel





\mathbf{Z}	Electronically file photo files into the on-site database
I	Complete Field Documentation Field Sample Data Sheets (FSDS)
\square	Logbook
	On-site computer database
☑	Label each sample media with a unique number
☑	Seal sample(s) in zip lock plastic bags
Ø	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
V	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
Ø	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
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Project: 3rd West Sub Station	Date: 03/28/12
Location: 3rd West, 1st South, SLC	Job Number:
Survey Conducted By:	Title:

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			х	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.		W	х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
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1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			х	,
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			х	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
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1926.405 (Ь)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			х	
1926.1053 (b)	Portable ladder side rails extend at least 3 feet or be secured at top.			X	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			х	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			3)
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			
1926.102 (a) (1)	Eye and face protection shall be provided.	x			2
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	
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1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			* - ·
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			X	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	,
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			2

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	P
1926.550 (b)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Bi-weekly meeting discussed items including scheduling, equipment, and planning. Follow up on environmental items including EZ procedures, water use on native material and air monitoring results. Exclusion zone active once excavation began. Newman loaded and washed out 8 trucks with trailers throughout the day. They also performed some leveling and compaction around bay 2.

CVE line crews worked on various tasks and attachment of equipment to structure steel. They also worked on splicing the 46kV lines inside the vaults.

CVE fabricators were not on site today.

Weather was mild, overcast, and dry with slight winds with highs near 60.





3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

	<u>DAILY CHECKLIST</u>
DATE:	03/29/11
Conoral	
General NA Work	area Health and Safety Inspection
NA WOIK	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
IVA	activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable)
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
NA Comr	plete all CSHASP Forms (for applicable activities planned for that day)
NA Î	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit From F
\square	Exclusion zone operations are practiced as instructed.
- .	✓ Decontamination unit is working properly.
	✓ Workers are using decontamination unit as instructed.
	✓ Workers use personal protective equipment properly.
<u>.</u>	Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
	Observe control measures for dust and fugitive materials i.e. watering excavation
	sites and track out prevention.
lacksquare	Review sign-in/sign-out log throughout and at the end of the workday.
\square	Secure the site at the end of the workday
Sampling	
NA Soil (Confirmation sampling for any newly excavated areas
	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	Digitally photograph each sample location and at any place field sampling personnel





☑		Electronically file photo files into the on-site database
☑		Complete Field Documentation
		Field Sample Data Sheets (FSDS)
		Logbook
	$\overline{\mathbf{A}}$	On-site computer database
		Label each sample media with a unique number
		Seal sample(s) in zip lock plastic bags
Ø		Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
	·	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
☑		Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
		Electronically file sample reports into on-site database



Project: 3rd West Sub Station	Date: 03/29/12		
Location: 3rd West, 1st South, SLC	Job Number:		
Survey Conducted By: Justin Kargis	Title:		

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.		×	х	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.	4		х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			х	
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			
1926.102 (a) (1)	Eye and face protection shall be provided.	х			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	х			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	X	-		
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	х			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	х			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Exclusion zone active once excavation began. Newman loaded and washed out 8 trucks with trailers throughout the day. They also performed some leveling and compaction around bay 2.

CVE line crews worked on various tasks and attachment of equipment to structure steel. They finished splicing the 46kV lines inside the vaults from out under 1st south through the gate to the new vaults. This vault work over the last few days has been in confined spaces and proper protocols with air monitoring appear to be observed.

CVE fabricators were not on site today.

Weather was mild, mostly cloudy, and dry. Slight winds with highs around 55.





3RD WEST SUBSTATION REMEDIATION PROJECT HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

	DAILT CHECKLIST
DATE:_	03/30/11
Gene	ral
	Vork area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
	activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable)
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
NA C	omplete all CSHASP Forms (for applicable activities planned for that day)
N	A Illness/Injury Report Form A
N	A Site-Specific Training Record Form C
N	A Hot Work Permit Form D
N	A Trench/Evacuation Permit Form E
N	A Combined Space Entry Permit From F
✓	Exclusion zone operations are practiced as instructed.
	☐ Decontamination unit is working properly.
	☑ Workers are using decontamination unit as instructed.
	☑ Workers use personal protective equipment properly.
☑	Set air samples at cardinal compass points around exclusion zone. Check
	throughout the day to ensure proper operation.
	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
	Review sign-in/sign-out log throughout and at the end of the workday.
☑	Secure the site at the end of the workday
Sam	pling
NA S	oil Confirmation sampling for any newly excavated areas
	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary





\square	Electronically file photo files into the on-site database
\square	Complete Field Documentation
\square	Field Sample Data Sheets (FSDS)
\square	Logbook
\square	On-site computer database
\square	Label each sample media with a unique number
	Seal sample(s) in zip lock plastic bags
7	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
\square	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
\square	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
\square	Electronically file sample reports into on-site database



Project: 3rd West Sub Station	Date: 03/30/12		
Location:3rd West, 1st South, SLC	Job Number:		
Survey Conducted By: Justin Kargis	Title:		

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			х	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	,
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			х	
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.	7.		x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			х	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.		-	x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			х	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			х	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			х	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	х			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x	-	81	
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.	81		x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	х			
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			X	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			Х	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a)	Bi-directional earth moving equipment shall have audible alarms.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	6-
1926.550 (b)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Exclusion zone not active today.

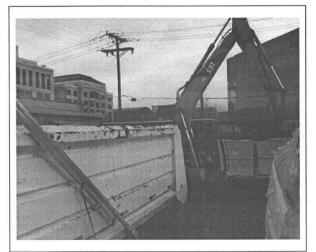
Newman helped CVE line crews and electricians splice 12.5 kV lines near north gate. They applied water to the majority of the yard including pile of native soil in the afternoon. They also did some leveling and compaction in the area between bay 2 and the 46kV structure.

CVE line crew continued with busswork and attaching equipment to structural steel.

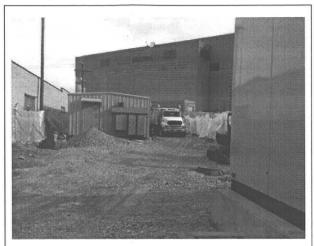
CVE electricians worked on splicing 46kV lines and other tasks.

CVE fabricators were not on site today.

Weather was warm, mostly sunny and dry. High temperatures around 75 and slight breezes throughout the day.



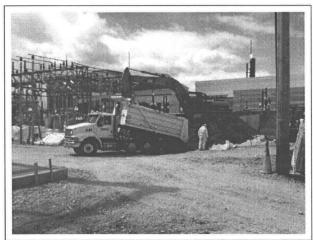
РНОТО 1



РНОТО 2



РНОТО 3



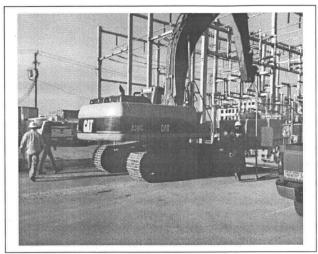
РНОТО 4

PROJECT NO:

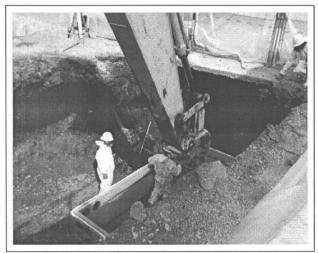
DESIGNED BY:	SCALE:	REVIEWED BY: DCR
DRAWN BY: JMK	DATE 03/26/12	FILE:

SITE PHOTOGRAPHS

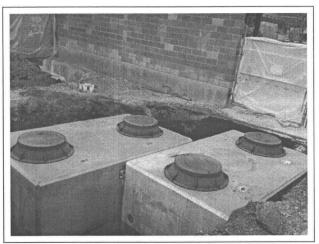




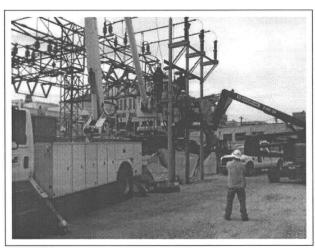
РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

PROJECT NO:

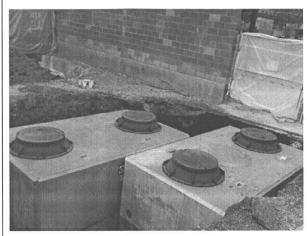
DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 03/27/12	FILE:	

SITE PHOTOGRAPHS









РНОТО 2

PROJECT NO:

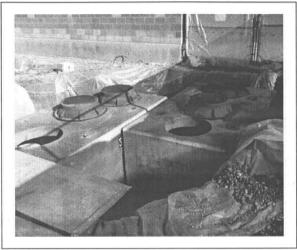
DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 03/28/12	FILE:	

SITE PHOTOGRAPHS





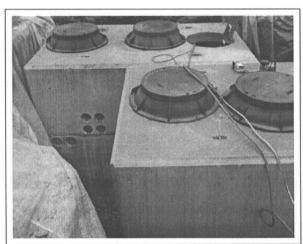
РНОТО 1



РНОТО 2



РНОТО 3



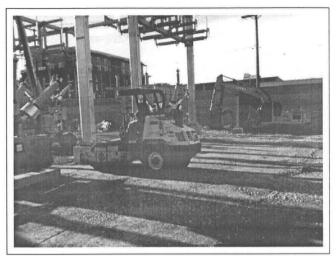
РНОТО 4

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 03/29/12	FILE:	

SITE PHOTOGRAPHS





РНОТО 1



РНОТО 2

PROJECT NO:

		Š.	
DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 03/30/12	· FILE:	

SITE PHOTOGRAPHS



PACIFICORP OPERATIONS - Field Construction Representative Daily Log PROJECT NAME: Third West Sub - Rebuild Monday, March 26, 2012 DATE: PO & Work Order NO. : 3000078050 / 10035803 MAIN CONTRACTOR: Cache Valley Electric Crew Start Time: Crew Stop Time: Tot Hrs mns: 10:35 FCR Start Time: 6:35 FCR Stop Time: Tot Hrs mns: Use military time format 00:00 WEATHER CONDITIONS: Partly Cloudy - Rainy - Windy, 55 degrees in AM, 50 degrees in PM DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) R&R set up four monitors. CVE Fab Crew is working off-site today on the 138 kV underground dips on 100 South and 550 West. They exposed the old conduits on the Gadsby circuit and extended the conduits with elbows into the chase going up the steel structure. There is not enough room in the chase for the spare conduit so they ran it up the south side of the chase and have placed a cap on it. CVE Line Crew #1 pressed connectors on jumpers and installed jumpers in the center bay. CVE Electrical Crew assembled the 125 V battery rack and installed the batteries, approximately 95% complete. STR demobed from the site today. Newman is excavating for yaults #2 and #3 inside the north gate. They exposed the twelve conduits coming into the substation from the vaults in 100 South and after cleaning out the hple in the morning will be ready to place the vaults. They are moving the excavated material to the EZ in a dump truck and are planning on hauling spoils to Clean Harbors on Wednesday and Thursday, March 28 and 29. CVE Line Crew #1 = 4, CVE Line Crew #2 = 0, CVE Fab Crew = 2, Newman = 5, STR = 3, R&R = 1, Wilding = 1. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Mike Spence 0637 Dispatcher logout, name and time: Barry Nielson 1710 **DISCREPANCIES:** IMMEDIATE CORRECTIVE ACTION TAKEN: 3/2 - Two aux relays missing from Pederson Switchgear. Pederson has confirmed that aux relays will be shipped on 3/23 - Still waiting for the second CT terminal block from Hyundai Confirmed with Ken Foster on 3/22 that RMP has not received 11/30 - Identified an additional retaining wall that is below grade and does not show on the Will excavate to determine dimensions. 12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and Sent e-mail to Roger F. didn't find them. Will try again. Actual deoth will be much deeper than design of new DELAYS OR LOST TIME ENCOUNTERED:

EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex, exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), boom truck, JLG (2), tool trailer. Newman: trachoe (4), loader, bobcat, mini-ex (2), water truck, compactor, backhoe. STR = crew truck, tool trailer, boom truck, processing trailer, generator.

OSHA Recordable Safety Incidents: Reported by: Time:

Rocky Mountain Power

Russ Johnson

Field Construction Representative

A division of PacifiCorp

PROJECT NAME: Third West Sub - Rebuild DATE: Tuesday, March 27

PROJECT NAME:		Third wes	st Sub - Rebuild	Tuesday, Warch 27, 2012								
PO & Work Order NO. :		30000780	050 / 10035803	MAIN CONT	RACTOR :	_Cache Valle	y Electric					
Crew Start Time:	€	6:50	Crew Stop Time:	17:20)	Tot Hrs mns:	10:30					
FCR Start Time:		6:40	FCR Stop Time:	17:25		Tot Hrs mns:	10:45					
Use military time format 00:0		0.40	i Olt Otop Inne.	17.20			10.43					
ose mintary time romation.	•											
WEATHER CONDITIONS:			Partly Cloudy - 38 c	legrees in AM, 6	0 degrees	in P M						
DESCRIPTION: (work per	forme	d, general c	omments, instructions to	contractor, # o	f crew me	mbers onsite.	.)					
R&R set up four monitors. CV Crew #2 had a training session They then terminated the three vaults #2 and #3 into the work first vault, #3, and realized the position. CVE Line Crew #1 =	n with re condu zone a y had d	eps from RayC actors for the V nd is cleaning lug the hole 1'	Chem to review procedures for Vest Temple #2 Circuit, which out the excavation in preparate too deep, so they placed grav	prepping the 46 k is the east circuit. ion for placing the el in the bottom of	V cable for the Newman revaults in the thole and	termination and the vault be hole. N ewmar distance the means the means and then reset the	splicing. sections for placed the vaults in					
IF WORKING IN ENERGIZ Dispatcher login, name and tin		JBSTATION:										
Dispatcher logout, name and t		Manny LuHa			-							
DISCREPANCIES:				IMMEDIATE CO	ORRECTIV	F ACTION TA	KFN:					
3/2 - Two aux relays missing from	Peders	on Switchgear		Received relays to								
3/23 - Still waiting for the second	CT termi	inal block from I	Hyundai	switchaear building Confirmed with Kei this yet		22 that RMP has	not received					
11/30 - Identified an additional ret Demo Plan.	aining w	vall that is below	grade and does not show on the	Will excavate to de	termine dime	nsions.	· · · · · · · · · · · · · · · · · · ·					
12/15 - Excavated to locate the 46 didn't find them. Will try again. A	ctual de	oth will be much		Sent e-mail to Rog	er F.							
DELAYS OR LOST TIME E	:NCOL	UNIERED:										
EQUIPMENT (working, de				(O) to all to all	· · · · · · · · · · · · · · · · · · ·	0)/5 1 : 0	Bishus (0)					
CVE fab crew: Portable toilet (3), boom truck, JLG (2), tool trailer. I truck, processing trailer, generato	Newman											
OSHA Recordable Safety	Incide	ents:		· · · · · · · · · · · · · · · · · · ·	Reported	bv:	Time:					
			···			<u> </u>						
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Rocky Mountain Power

Russ Johnson

Field Construction Representative

A division of PacifiCorp

PACIFICORP OPERATIONS - Field Construction Representative Daily Log Wednesday, March 28, 2012 Third West Sub - Rebuild DATE: PROJECT NAME: PO & Work Order NO.: 3000078050 / 10035803 MAIN CONTRACTOR: Cache Valley Electric Crew Start Time: 6:30 Crew Stop Time: 17:00 Tot Hrs mns: 10:30 Tot Hrs mns: 10:50 FCR Start Time: FCR Stop Time: Use military time format 00:00 **WEATHER CONDITIONS:** Partly Cloudy to Cloudy - 53 degrees in AM, 45 degrees in PM DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) R&R set up four monitors. CVE Fab Crew is working off-site today. CVE Line Crew #1 and #2 teamed up to install the terminations and arresters for the #1 (south) circuit at the getaway structure and the splices for the #2 (east) circuit in the new 46 kV vaults. Raychem reps were on site again today to train and supervise the work performed. CVE completed the terminations, arresters, and jumpers for the #1 circuit but were not able to access the arrestors for the #2 circuit at the dip pole over on 100 South. The #1 (south) circuit will be spliced in the yault out in 100 South on Thursday and the #2 (east) circuit is spliced in the new 46 kV yaults. Newman loaded out eight trucks and pups with material going to Clean Harbors. This makes a total of 219. They also compacted the area south of the #2 Xfmr and watered down the debris pile and the site. CVE Line Crew #1 = 4. CVE Line Crew #2 = 5. CVE Fab Crew = 0. Newman = 5. Geary = 4. Factory Reps = 2, R&R = 1, Wilding = 0. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Al Swinski 0628 Dispatcher logout, name and time: Barry Nielson 1718 IMMEDIATE CORRECTIVE ACTION TAKEN: DISCREPANCIES: 3/23 - Still waiting for the second CT terminal block from Hyundai Confirmed with Ken Foster on 3/22 that RMP has not received 11/30 - Identified an additional retaining wall that is below grade and does not show on the Will excavate to detennine dimensions. 12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and Sent e-mail to Roger F. didn't find them. Will try again. Actual depth will be much deeper than design of new DELAYS OR LOST TIME ENCOUNTERED: EQUIPMENT (working, delivered, idle): CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex, exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2).

boom truck, JLG (2), tool trailer. Newman: trachoe (4), loader, bobcat, mini-ex (2), water truck, compactor, backhoe. STR = crew truck, tool trailer, boom

Rocky Mountain Power

OSHA Recordable Safety Incidents:

Russ Johnson

Field Construction Representative

Reported by:

Time:

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truck, processing trailer, generator.

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third West Sub	- Rebuild	DATE :	, 2012						
PO & Work Order NO. :	3000078050 / 10	0035803	MAIN CONTR	RACTOR :	C a che Valle	y Electric				
Crew Start Time:	5:50	Crew Stop Time:	18:30		Tot Hrs mns:	11:40				
FCR Start Time:	5:34	FCR Stop Time:	18:50		Tot Hrs mns:	12:16				
t/se military time format 00:00		· -	 		-					
WEATHER CONDITIONS:		Sunny - 40 degre	es in AM, 65 de	grees in F	M					
DESCRIPTION: (work performe R&R set up four monitors. CVE Fab 0										
and installed the jumpers from the Sna 100 South for the #1 (South) circuit. It of 227 loads. They placed material ar Miller Concrete was on site core-drilling identified that the south circuit did not CVE Fab Crew = 0, Newman = 5, Ga	Newman loaded out e round the west breakeng additional holes in the have the concentric g	ight trucks and pups with or pads in preparation fo the 12 kV vaults. Wildin grounded to the steel/gri	n m aterial going to r the forming of th g was not on the	o Clean H a le porches job today	rbors. This mak for the 46 kV bre Alan Bezzant ca	es a total eakers. ame by and				
IF WORKING IN ENERGIZED SL	· · ·					·····				
Dispatcher login, name and time: Dispatcher logout, name and time:	Al Swinski 0634									
DISCREPANCIES:	Barry Nielson 1847		MMEDIATE CO	RRECTIV	E ACTION TA	KEN.				
		Ī		TITLE OF THE	Z / C / C / C / C	7				
3/23 - Still waiting for the second CT termi	nal block from Hyundai		Confirmed with Ken his yet.	Foster on 3/	22 that RMP has r	not received				
11/30 - Identified an additional retaining w Demo Plan.	all that is below grade a	nd does not show on the	Mill excavate to det	ermine dime	nsions.	-				
12/15 - Excavated to locate the 46 kV cab didn't find them. Will try again. Actual de			Sent e-mail to Roge	r F.						
DELAYS OR LOST TIME ENCOU	INTERED:									
						·				
EQUIPMENT (working, delivered	d, idle):									
CVE fab crew: Portable toilet (3), forklift,	CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex, exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), boom truck, JLG (2), tool trailer. Newman: trachoe (4), loader, bobcat, mini-ex (2), water truck, compactor, backhoe. STR = crew truck, tool trailer, boom									
OSHA Recordable Safety Incide	ents:			Rep or ted	by:	Time:				
		- · · · · · · · · · · · · · · · · · · ·			<u> </u>					
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Rocky Mountain Power

Russ Johnson

Field Construction Representative

A division of PacifiCorp

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Thi rd We	st Sub - Rebuild	DATE: Friday, March 30, 2012							
PO & Work Order NO. :	3000078	050 / 10035803	MAIN CONTR	MAIN CONTRACTOR : Cache Valle						
Crew Start Time:	6:50	Crew Stop Time:	17:30		Tot Hrs mns:	10:40				
FCR Start Time:	6:37	FCR Stop Time:	17:40		Tot Hrs mns:	11:03				
Use military time format 00:00		•			•					
· .	,									
WEATHER CONDITIONS:		High Clouds, 50 de	egrees in AM, 70 o	degrees ir	1 PM					
DESCRIPTION: (work perform R&R set up four monitors. CVE Fab										
West. One conduit, of the four, in the was determined we would not run the unloaded the last of the structural structural structured the west 138 kV breakers are twelve conduits running from 100 Sc CVE to West Temple Sub and remoundeground circuits. Alan Bezzant on Monday. CVE Line Crew #1 = 3	e fourth conduined, hauled 6" Industrial worked with outh, under the ved grounds to called to inform	it from the curb to the riser char PVC for Newman, and worked of Miller Concrete to complete the driveway, were tied into vaults of facilitate test energization of the me that the phasing on the two	se. CVE Line Crew on 138 kV jumpers core drilling of hole #2 and #3. Wilding ne Third West to We o 46 kV circuits was	removed g . Newman es in Vaults g was not of est Temple out, requir	grounds at West compacted mat 5 #2, #3, #4, and n the job today. 1 #1 and #1 46 k	t Temple, erial I #5. The Escorted V				
										
Dispatcher login, name and time:	Al Swinski (
Dispatcher logout, name and time:	Barry Nielso									
DISCREPANCIES:	IBany Mois		IMMEDIATE CO	RRECTIV	E ACTION TA	KEN:				
3/23 - Still waiting for the second CT term	ninal block from	Hyundai	Confirmed with Ken I this vet.	Foster on 3/2	22 that RMP has r	not received				
11/30 - Identified an additional retaining	wall that is below	v grade and does not show on the	Will excavate to dete	mine dimer	nsions.					
Demo Plan. 12/15 - Excavated to locate the 46 kV cadidn't find them. Will try again. Actual DELAYS OR LOST TIME ENCO	eoth will be muc		Sent e-mail to Roger	F						
EQUIPMENT (working, delivered, idle): CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex, exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), JLG (2), tool trailer. Newman: trachoe (3), loader, bobcat, mini-ex, water truck, compactor, backhoe.										
OSHA Recordable Safety Incid	lents:		F	Reported	by:	I Time:				
			T			·				
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Rocky Mountain Power

Russ Johnson

Field Construction Representative

A division of PacifiCorp



March 28, 2012

Laboratory Code: Subcontract Number:

RES NA

Laboratory Report: Project # / P.O. #

RES 232471-1 None Given

Project Description:

3rd West Sub - RMP

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 232471-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 232471-1

Client:

Client Project Number / P.O.:

R & R Environmental

Client Project Description:

None Given

Date Samples Received:

3rd West Sub - RMP

Analysis Type:

March 27, 2012

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

March 28, 2012

Client ID Number	Lab ID Nu	ımber	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-032612 W	EM	87404 6	0.0900	889	ND	0.0048	. BAS	BAS
3W-032612 N	EM	874047	0.0900	889	ND	0.0048	BAS	BAS
3W-032612 E	EM	874048	0.0900	887	ND	0.0048	BAS	BAS
3W-032612 S	EM	874049	0.0900	887	ND	0.0048	BAS	BAS

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

DATA QA

RES 232471

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NOTE: F	REt will analyze incoming a	samples based upon Information received	and will not be respon	nsible for errors or or	nissions in ca	lculati	ons resu	lting fre	om the	e inaccu	racy o	f origin	nal da	ata, By	signir	ng clien	t/comp	any rep	reaentativ	agre	es tha	i submiss	Jon of th	hs following sar	nples tor rec	uested	
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Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

Α	=	Amosite	F =	Fiber
An	=	Anthophyllite	B =	Bundle
C	=	Chrysotile	C =	Cluster
Cr	=	Crocidolite	M =	Matrix
T	=	Tremolite		

ND = no structures detected

M = other structure associated with a matrix.

NAM = Non Asbestos Mineral

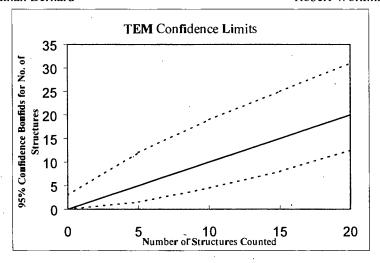
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI
instrument	JEOL 100 CX NS
Voltage (KV)	100 KV
Magnification	20K 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	

RUR
A
889
3/27/12
232471
874046

Analyzed by	3/3
Analysis date	3/28/12
Method (D=Direct, I=Indlrect, IA=Indlrect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps	Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure	No. of Str	uctures	uctures Dimensions		Identification	Mineral Class	***************************************			1 = y	es, blank	= no
Ond	Ond Opening	Туре	Primary	Totat	Length	Width	luchtimeation	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	H2-6	ND												
	192-4	ND												
	F2-6	MD				l		·		1				
	12-60	B			Da	γ S	As B	~ 80%	nh	4	5/20 debu	5		
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Laboratory name:	REI
Instrument	JEOL 100 CX (N)S
(Voltaae (KV)	100 KV
Maanification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D=	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	Rark
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	889
Date received by lab	3/27/12
Lab Job Number:	232471
Lab Sample Number:	8 74047

Analyzed by	513
Analysis date	3/28/12
Method (D=Oirect, I=Indirect, IA=IndIrect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):					
Fraction of primary filter used					
Total Resuspension Volume (ml)					
Volums Applied to Secondary filler (ml)					

Grid	Grid Opening	Structure	No. of Structures				Dimensions Identification		Mineral Class				1 = yes, blank = no		
Gild	Grid Opening	Туре	Primary	Total	Length	Width	Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS	
A	24-1	ND								:					
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Laboratory name:	REI
Instrument	JEOL 100 CX/N)S
Voltage (KV)	100 KV
Magnification	20K 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filler Area (mm2)	
QA Type	

Client :	RAR
Sample Type (A=Air; D=Dust):	A
Air volume (L) or dust area (cm2)	887
Date received by lab	3/27/12
Lab Job Number:	23247
Lab Sample Number:	874048

Analyzed by	J13
Analysis date	3/28/12
Method (D=Dlrec), I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):						
Fraction of primary filter used						
Total Resuspension Volume (mi)						
Volume Applied to secondary filter (ml)						

Grid	Grid Opening	Strncture	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class					1 = yes, blank		
Gild	Grid Operang	Туре	Primary	Total	Length	Width	identification	Amphibole	C NAM		NAM Sketch/Comments		Photo	EDS	
A	H4-6	ND													
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Laboratory name:	REI
Instrument ·	JEOL 100 CX NS
Voltage (KV)	100 KV
Maanification	€20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

RAR
A
887
3/27/12
232471
874049

Analyzed by	313
Analysis date	3/28/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D'
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage tocation	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):								
Fraction of primary filter used								
Total Resuspension Volume (ml)								
Volume Applied to secondary filter (mi)								

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class				1 = ye	es, blank	= no
Grid	Grid Operaring	Туре	Prknary	Total	Length	Width	Identification	Amphibole	С	NAM	IAM Sketch/Comments		Photo	EDS
A	K31	MD												
	H3-1	M												İ
	6-3-1	ND			tups	A41	3 n	80 h.	r La	F	3-5%	desi	5	
	F3-1	ND			,					<u> </u>				
	23-6	ND							13	3/2	8/12			·
B	K3-1	ND								/ ·	/			
	HZ-1	ND												
	(913-1	ND												
	F3-1	MD												

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the sampies, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confinnation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



March 29, 2012

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 232590-1 None Given

Project Description:

3rd West Sub - RMP

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polahzed Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 232590-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 232590-1

Client:

R & R Environmental

Client Project Number / P.O.:

None Given

Client Project Description: Date Samples Received:

3rd West Sub - RMP

March 28, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Oate Samples Analyzed:

March 29, 2012

Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter	
ID Number	ID No	umber	Analyzed	Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration	Loading	
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)	
3W-032712 W	EM	874 2 76	0.0900	929	ND	0.0046	BAS	BAS	
3W-032712 N	EM	874 2 77	0.0900	931	1	0.0046	0.0046	11.1	
3W-032712 E	EM	874 2 78	0.0900	931	ND	0.0046	BAS	BAS	
3W-032712 S	EM	874 2 79	0.0900	903	ND	0.0047	. BAS	BAS	

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity
Average Grid Opening in mm² = 0.010

Filter Material = Mixed C ellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

DATA QA

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number:

RES 232590-1

Client:

R & R Environmental

Client Project Number / P.O.:

None Given

Client Project Description:

3rd West Sub - RMP

Date Samples Received:

Marct 28, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

March 29, 2012

Client ID Number	Lab ID Ni	umber	Asbestos Mineral	Asi	bestos Str	ucture Tyj	pes*	Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for
			-	Fibers	Bundles	Clusters	Matrices	_		Concentration
3W-032712 W	EM	874276	ND		0	0	0	0	0	0
3W-032712 N	EM	874 2 77	Ctrysotile	0	1	0	0	1	0	' 1
3W-032712 E	EM	874 2 78	ND	0	Ö	0	0	0	0	0
3W-032712 S	·EM	874 2 79	ND	0	0	0	0	. 0	0	0

^{*}See Analytical Procedure for definitions

^{**}C = Excluded from total due to lack of confirmation

^{**}L = Excluded from total for length less than 0.5 micron (AHERA only)

^{**}A = Excluded from total due to i ncorrect as pect ratio

ND = None Detected

Due Date: 3-29-12	•																	.5.	
Due Time: 2:45 PM - 41 2/28 REILAB F	<i>leservoir</i>	5	E	77	vii	O	m	ne	:/7	ta	r/, .	Fer		~			Job #		
8:45 am	9801 Logan St. Danver, C Pagar : 303-90			r 303 9	964-1986	Fax 3	03-477-4	275 • To	oli Frse	:\$65 RI	ESI-ENV						Page _	_1°	of
,	INVOICE TO: (IF			NT)							(CON	TAC	T IN	FOR	MATION	:		
Company: [LEK Environmental	Company:					Contac	" Day	Re	عادوا	les					Contac				
Address: 47 W 9,000 S \$2	Address:					Phone:									Phone				
Sandy Ut 84070						Fax:								_	Fax:				
						Cell/pe	ger: 900 Date Oelive	<u>n 5</u>			<u></u>				Call/pa	iger:			
Project Number and/or P.O. 8: Project Description/Location: 752 Way Sub - RAND					—-{		1				Dieson	_							
Project Description/Location: 32 West Sub -RMP				_			Can	رواد	1.0	wit	U.COW	<u> </u>							
ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm		 	<u> </u>	· .	REC	UES	TED A	NAL	YSIS	<u> </u>	1 1	1			_	ATRIX (LA	B NOTES:
PLM / PCM / EM RUSH (Same Day) / LPRIORITY (Next Day	y)STANDARD	1							1 1			-		\ir = .			Bulk = B		
(Rush PCM = 2hr, TEM = 9hr.) CHEMISTRY LABORATORY HOURS: Weekdays: 8am - Spm		1				ı					11	-		ust =			Paint = P Vipe = W	+	
Matal(s) / Dust RUSH 24 hr 3-5 Day		1				Ì	11		11		1	-		ab =	_		F = Food	+	<u>·</u>
DODA 6 (Stevele 9 Mindfle)	**Prior notification is		Quant,	1 1		ا ـ	11	1 5		11		D					e Water = WW	, 	· · · · · · · · · · · · · · · · · · ·
Fume Scan / TCLPRUSH 5 day10 day	required for RUSH turnerounds.**	į	÷. Ω			SCS		ig E		11	S S	٦				= Other		T	
Organics 24 hr 3 day 5 Day		Point Count	•			Metals	11	Quantifi	5	_	ution, Quantification		"ASTI	M E17	792 ap	proved wit	e media only**		
MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - Spr	n	ا يا	ISO,				1	10	8 2	1 g 5	g E	Г							
E.coli O187:H7, Coliforms, S.aureus24 hr2 Day	3-5 Day	8	7402, ISO-Indii	SHA A		rume.				ig ar	8 5	1					1	<u> </u>	
Salmonella, Listeria, E.con, APC, Y & M 48 Hr 3-5 Day		g G	el II, 7 ac, IS		appe	할		يا	Quantifical or Quant	8	2 6						1		
Mold RUSH24 Hr		12	evel	7400B,	Respirable lyte(s)	<u></u> ₹	.] .] . [Semit	1 1	80	MITTALS								
Tumaround timeS establish a laboratory priority, Subject to laboratory volume and a apply for afterhoure, waskende and holidays.	re not guaranteed. Additional fees	8 E	5 ×		R Ser	7. ₹] † <u>;</u>	ate (l ° F	÷ °					s)			-	
Special Instructions:		Short	- AHERA, quant, Mic	7400A	DUST - Total, Respirabl METALS - Analyte(s)	RCRAS, TCLP, WE	Satmoneda: +/- E.coli 0157:H7;	ja; A ja;	Coliforns	isi +	* S	3	ripie volume / Area	Sode	Containers			EM Nu	mber (Laboretor)
		I • [• ₹	1 . 1	ALS	8 X	E 8	Listeria: Aerobic	13 Se	8 8	PLE	1 5	Sample v (L) / Area	ě	g	Date	Time	4 1	Uae Only)
Client sample ID number (Sample ID's must be unique))	돌	Semi	Š	DUST			MICR	OBIOL		SAS		ž Ž	Matrix	#	Collecter gur/od/yy	Collected		
1 3W032762W			X			T				П		9	29	A	3	3 27 12		87	1276
2 3W-032712N			T					1		\prod		9	31						77
3 3W-032712 E		П	1			\neg						q	31						78
4 3W 0327125			1							\top		9	03			J			29
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Number of samples received: (Additio	nal samples shall be listed on	attac	hed lo	ng fo	rm.)					سنا				اللبنا	<u></u>				·
NOTE: REI will analyza incoming samples based upor Lafermation recaived and will not be reanallysis as indicated on this Chaig of Custony shall constitute an analytical services agreem													entslive	agre	es that	submission	of the following s	amples for re	ques 18d
	Tel E.	,			/Time:	7	-}				25. 36.51	•••	T_		C ·	lai a.a.	Onles		Intest
Relinquished By: (AMA)	1 40 534				y) (me:	الماس	7115		/				-1	•	Cond ^{E®})			Sealed Yes / No	Intact Yes / No
Received By: Date	e/Time: 3/2-8/12_	8:4	574	2	Can	ier:	_7-	ul					1 911	ιρ. (r	<u>'</u> -		1637110	7637140	1031140
Results: Contact Phone Email Fax Date	Time Initia			ntact			Phon	e Ema	il Fa			O	ite			Ţ	me	Initia	nls
Contact Phone Email Fax Date	Time Initia	als	Co	ntact			Phon	e Ema			E.		ite				me 2208	Initia	uls
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## **Attachment I**

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type	Structure Types
A = Amosite An = Anthophyllite* C = Chrysotile Cr = Crocidolite T = Tremolite	F = Fiber B = Bundle C = Cluster M = Matrix
1 - Hemonie	

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

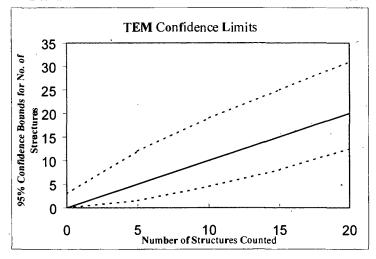
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

#### **TEM** Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltaae (KV)	100 KV
Magnification	(20KX 10KX
Grid opening area (mm2)	0.01
Scate: 1L =	0.28 um
Scale: 10 =	0.066 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	

Client :	RIR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	929
Data received by lab	3/28/12
Lab Job Number:	232590
Lab Sample Number.	874276

F-Factor Calculation (Indirect Preps Only):						
Fraction of primary filter used						
Total Resuspension Volume (mi)						
Volume Applied to secondary fliter (ml)						

Analyzed by	-1K-
Analysis date	3/28/12
Method (D=Direct, l=Indlrect, IA=Indlrect, ashed)	P
Counting rules (ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dimensions Iden		Dimensions Identification Mineral Class				1 = yes, blank = no			
	One oponing	Туре	Primaty	Total	Length	Width		Amphibola	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	95-4	M		·				,						
	F5-4	M		L	Pne	PA	757.	mac 52	de	からる				
	55-4	N)			Pn	r B	MA	now 52	3/	2-8/1				
	K-3-4	M										r		
	434	M												
B	L4-3	M									·			
	F5-1	M												
	14-3	M												
	HS-4	·M												

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltaae (KV)	100 KV
Maanification	€0KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	RIR
Sampio Type (A=Air, D=Dust):	A
Atr yolume (L) or dust area (cm2)	931
Date received by lab	3/28/12
Lab Job Numben	232590
Lab Sample Number:	874277

Analyzed by	me-
Analysis date	3/28/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting miles (ISO, AHERA, ASTM)	AH
Grtd storage location	Month Analyzed
Scope Alignment	Oate Analyzed

F-Factor Calculation (Indirect Preps Only):					
Fraction of ptimary filter used					
Total Resuspension Volume (ml)					
Volume Applied to secondary filter (ml)					

Grid	Grid Opening	Structure	No. of St	ructures	Dimensions		Dimensions		Dimensions Identification		Mineral Class			1 = yes, blank = no		
	Jina Spanning	Туре	Primary	Total	Length	Width	10011	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS		
A	F5-6	M		<u>.</u>	· 											
<u>' .</u>	656	M				Pr	er A 8	il infac	ک	1. de	bis					
	C5-6	M				Pno	N BM	- Junt	- <u>-</u>	128	1/2					
	EN-Y	M				,										
	C4-4	B		ĺ	31	4	00		/							
B	H3-3	M												<u> </u>		
	613-3	M														
·	F3-3	M														
	€3-3.	.M														

Laboratory name:	REI
Instrument	JEOL 100 CX(N)S
Voltage (KV)	100 KV
Magnification	<u>∕2010</u> 10100
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	

Client :	Roll
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	931
Date received by lab	3/28/12
Lab Job Number:	232590
Lab Sample Number:	874278
Lab Sample Number.	10/1278

Analyzed by	JK
Analysis date	1/24/12
Method (D=Oirect, I=Indirect, IA=Indirect, ashed)	7
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps	Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure	No. of Str	uctures	Dimensions		identification	Mineral Class				1 = yes, blank = no		
Gild	Grid Opening	Туре	Primaty	Total	Length	Width	Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	62-1	ND.				·								
	F2-1	25			Da	n A	70	1/2 intan	1	5	re/ debus			
	EZ-U	W			R	2 B	~50	Of in In	7	5-7	% do bus			
·	C2-6	ND		,	, .									
	B2-6	ND												
6	6:4-4	Du				·								
	F4-4	M								<i>'</i> .				
	E4-4	ND					•							
	E4-6	ND								4.7				
<del></del>					·									

Laboratory name:	REI
Instrument	JEOL 100 CX/N)S
Voltage (KV)	100 KV
Magnification	<u>20KX</u> ) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	<u></u>
QA Tyoe	

Client:	RaiR
Sample Type (A=Air, D=Dust):	A
Air yolume (L) or dust area (cm2)	903
Dale received by lab	3/28/12
Lab Job Number:	232510
Lab Sample Number:	874279

Analyzed by	JK
Analysis dale	1/29/12
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	7)
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps	Only):
Fraction of primary filter used	
Total Resuspension Volume (mi)	
Voluma Applied to secondary filter (ml)	

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class			]	1 = y	es, blank	= no
GHU Server Process	Grid Operary	Туре	Primary	Total	Length	Width	Identineation	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	62-3	WD												
	F2-3	ND												
	EZ-3	M			Pup	s Ar	3 ~	50% ca	Lul		5-10 lode	by		
	F2-4	ND		,	•			1						
	EZ-4	M						1/2 3	24/2					
B	L3-1	M						/T /						
	K3-1	PN PN						•						
	H3-1	W)			,									
	154-1	MD				. 50								

#### Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

if more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

#### Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration,  $s/cc = \frac{\# \ Asbestos \ Structures}{\# \ GO \ Counted} \ x \frac{1}{Volume \ (L)} \ x \frac{Eff \ Filter \ Area \ (mm^2)}{Average \ GO \ area \ (mm^2)} \ x \frac{1L}{1000cc}$ 

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



March 30, 2012

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 232690-1 None Given

Project Description:

3rd West Sub - RMP

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AlHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 232690-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

NVLAP Lab Code 101896-0; TDH: #30-0015

#### TABLE |. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 232690-1

Client:

R & R Environmental

Client Project Number / P.O.: Client Project Description:

None Given

Date Samples Received:

3rd West Sub - RMP

Analysis Type:

March 29, 2012

TEM, AHERA

Turnaround:

24 Hour

Date Sainples Analyzed:

March 30, 2012

Client	Lab	Area	Air	Number of	Analytical	Asbestos	Filter	
ID Number	ID Number	Analyzed	Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration	Loading	
		(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)	
3W-032812 W	EM 874598	0.0900	932	1	0.0048	0.0046	11.1	
3W-032812 N	. EM 874599	0.0900	9 <b>32</b>	ND	0.0046	BAS	BAS	
3W-032812 E	EM 874600	0.0900	9 <b>32</b>	ND	0.0046	BAS	BAS	
3W-032812 S	EM 874601	0.0900	932	ND	0.0046	· BAS	BAS	

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

DATA QA

NVLAP Lab Code 101896-0; TDH: #30-0015

#### TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number:

RES 232690-1

Client:

R & R Environmental .

Client Project Number / P.O.:

None Given

Client Project Description:

3rd West Sub - RMP

Date Samples Received:

March 29, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

March 30, 2012

Client , ID Number	Lab ID No	umber	Asbestos Mineral	Asi	bestos Str	ucture Typ	oes*	Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for
			-	Fibers	Bundles	Clusters	Matrices			Concentration
3W-032812 W	EM	874598	Chrysotile	0	1	0		0		1
3W-032812 N	EM	874599	ND	0	. 0	0	0	0	- 0	0
3W-032812 E	· EM	874600	ND	. 0	0	0	0	0	, 0	0
3W-032812 S	EM	874601	ND	. 0	0	0	0	0	0	0

^{*}See Analytical Procedure for definitions

^{**}C = Excluded from total due to lack of confirmation

^{**}L = Excluded from total for length less than 0.5 micron (AHERA only)

^{**}A = Excluded from total due to i ncorrect aspect ratio

ND = None Detected

Due Oate: 3-30-12 Due Time:

# S801 Logan St. Donver, CO 80216 • Ph: 303 964-1868 • Fax 303-477-4275 • Toll Free :868 RESI-ENV

Pager: 303-609-2098

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April 2, 2012

Laboratory Code:

RES

Subcontract Number: Laboratory Report:

NA.

Project # / P.O. #

RES 232807-1 3rd West Sub - RMP

Project Description:

None Given

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer.

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 232807-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

NVLAP Lab Code 101896-0; TDH: #30-0015

#### TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 232807-1

Client:

R & R Environmental

Client Project Number / P.O.:

3rd West Sub - RMP

Client Project Description: Date Samples Received:

None Given

Analysis Type:

March 30, 2012

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

March 31, 2012

Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter
ID Number	ID Ni	umber	Analyzed	Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration	Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-032912 W	EM	87487 <b>2</b>	0.0900	898	1	0.0048	0.0048	11.1
3W-032912 N	EM	87487 <b>3</b>	0.0900	896	ND	0.0048	BAS	BAS
3W-032912 E	EM	874874	0.0900	893	ND	0.0048	BAS	BAS
3W-032912 S	EM	874875	0.0900	893	ND	0.0048	BAS	BAS

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

DATA QA

NVLAP Lab Code 101896-0; TDH: #30-0015

#### TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number:

RES 232807-1

Client:

R & R Environmental

Client Project Number / P.O.:

3rd West Sub - RMP

Client Project Description: Date Samples Received:

None Given

March 30, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

March 31, 2012

Client ID Number	Lab ID Nu	mber	Asbestos Mineral	Asl	oestos <b>Š</b> tr	ucture Ty	oes*	Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for
				Fibers	Bundles	Clusters	Matrices			Concentration
3W-032912 W	EM	874872	Chrysotile	1	0	0	. 0	0	1**L	1
3W-032912 N	EM	874873	ND	0	. 0	0	0	0	0	0
3W-032912 E	EM	874874	ND	. 0	0	0	0	. 0	0	0
3W-032912 S	EM	874875	ND	. 0	0	0	0	0	0	. 0

^{*}See Analytical Procedure for definitions

^{**}C = Excluded from total due to lack of confirmation

^{**}L = Excluded from total for length less than 0.5 micron (AHERA only)

^{**}A = Excluded from total due to i ncorrect aspect ratio

ND = None Detected

Due Date: 33 - 12 Due Time: 845~

# S601 Logan St. Denver, CO 80216 · Ph: 303 964-1986 · Fax 303-477-4275 · Toll Free :866 RESI-ONV

Page __1__ ot ____

	Pager: 303-509 INVOICE TO: (IF			MTI										<u></u>	ONT/	СТ	INC	OP.	AATI	ON:				
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# **Attachment I**

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

# Asbestos Type A = Amosite An = Anthophyllite C = Chrysotile Cr = Crocidolite Structure Types F = Fiber B = Bundle C = Cluster M = Matrix

T = Tremolite

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

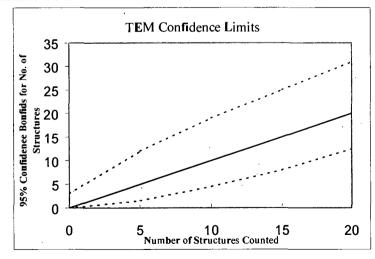
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

# **TEM Analysts**

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

#### Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX NS
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	}

Qient :	R+R
Sample Tyoe (A=Air, D=Dust):	A
Air volume (L) or dist area (cm2)	898
Date received by lab	3/30/12
Lab Job Number:	232807
Leb Sample Number:	874872

	<del></del>
Analyzed by	ML
Analysis date	3/30/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	り
Courting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):	
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class			·	1 = y	s, blank	= no
	Ond Opening	Туре	Primaıy	Total	Length	Width	identification	Amphiboie	С	NAM	Sketeh/Comments	Sketch	Photo	EDS
A	65-4	M												
	F5-4	M						,						
·	25-4	F		1	3	١	co				血			
		F		D	1,5	l	CD	·			& exc	در 5 یا	m	
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	93-1	W												,
	F3-1	M											,	
	23-1	M						.						

# Reservoirs Environmental, Inc. TEM Asbestos Structure Count

i Mili Vangalna Oli	actine Count
Client :	72+R
Sample Type (A=Air, D=Quat):	A
Air yolume (L) or dust area (cm2)	8.96
Date received by lab	3/30/12
Lab Job Numben	23280
Lab Sample Number:	87487
F-Factor Calculation (Indirect P	reps Only):
Scartion of retreaty filler used	

Analyzed by	-M
Analysis date	3/20/12
Method (D≖Direct, l≖Indirect, IA≃Indirect, ashed)	$\mathcal{O}$
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Data Analyzed

Fraction of primary filter used	
Total Resuspension Volumo (mi)	
Volums Applied to secondary filter (ml)	

Grid	Grid Opening	Structure	No. of St	uctures	Dimensions		identification	Mineral Class			]	1 = yes, blank = no		
		Туре	Primary *	Total	Length	Widih		Amphibola	_ c ·	NAM	Sketch/Comments	Sketch	Photo	EDS
A	156	M				•								
	656	W				Phe	v A s	is interes	Su	7700	lebro			l
	P5-6	M				Pres	B 83	Virtues Ensur	5-	77.	elebro -	1-11	3/2	1/1/
	25-6	IM												1
	C5-6	W					<u> </u>					\	<u> </u>	
B	K2-1	M				<u>                                     </u>						ļ		<u> </u>
	H2-1	M											1	<u> </u>
	92-1	M										1		
	F2-1	M			<u> </u>									

LA = Libby-typa amphibole

Laboratory name:

Magnification Grid opening area (mm2)

Scale: 1L =

Scale: 1D ≈

QA Tyoe

Primary filter area (nim2) Secondary Filter Area (mni2)

Instrument Voltage (KV) JEOL 100 CX N 6

100 KV

(20KX) 10KX 0.01

0.28 um

0.088 um

385

OA = Other (non-Libby type) amphibola

C = Chrysotile

· NAM ≈ Non-asbesios material T:XOABCU stATEIALsb DaceArd:tve\TEM CessU Sizet rev. !-! !-! da

Reservoirs	Environmental, inc.
TEM Asbes	tos Structure Count

Client :	R+R
Sample Type (A=Air, D=Oust):	A
Air yoluma (L) or dust area (cm2)	893
Date received by lab	3/30/12
Lab Job Number;	232807
Lab Sample Number:	874874

Analyzed by	-M
Analysis date	3/20/12
Niethod (D=Direct, l=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	A11
Grkl storage location	Month Analyzed
Scope Ailgnment	Oate Analyzed

P 10 _ 4	Calculation	46 11 4	_	
F-FSCIOR	CONTRACTOR	CIDALIBORI	Prope	( )00(1/1)
I -I GOLOI	Carculation	I I I I I I I I I I I I I I I I I I I	· IOPS	Othy,

Frection of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to Secondary tilier (ml)	

Grid	Grid Opening	Opening Structure No. of Structures		uctures	Dimensions Identification		Mineral Class			1 = yes, blank = no				
		Туре	Pdmaiy	Total	Length	Width		Amohibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	66-4.	ΛM												
	PLY	M								[		!		
	84-4	M			Pre	Y A	352 was	+ 5/	lebin	o .				
	Clory	M			Mr	VP	A	Jule -	131	12_				
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B	FM-6	W												
	64-6	M						,						
· 	C4-6	M												
	346	· .M)												
						T	T							

LA = Libby-typa amphibole

Laboratory name:

Magnification Grid opening area (mm2)

Scale: 1D =
Primary filter area
(mm2)
Secondary Filter Area
(mm2)

Scale: 1L=

GA Tyoe

Instrument
Voltage (KV)

REI JEOL 100 CX N

100 KV

0.01

0.28 um

0.066 um 385

OA . Other (non-Libby type) amphibole

C = Cluysottie

NAM = Non-asbestos material
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Reservoire Enviranmental, 1nc. TEM Asbestos Structure Count

<del></del>		
Laboratory name:	REI	
Instrument	JEOL 100 CX N 6	•
Vollage (KV)	100 KV	
Maanification	(20KX) 10KX	
Grid opening area (mre2)	0.01	
Scale: 1L=	0.28 um	
Scale: 1D =	0.056 um	
Primary filter area (mm2)	385	
Secondary Filter Area (mm2)		
OA Type		ļ '

Client:	72+R
Sample Type (A≔Alr, D≂Dust);	A
Air volunie (L) or dust area (cm2)	893
Date received by lab	3/30/12
Lab Job Number:	232807
Lab Sample Number:	874875

Analyzed by	- M
Analysis date	3/20/12
Method (D≖Direct, i≈indirect, IA=indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Anslyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):								
Fraction of primary litter used								
Total Resuspension Volume (ml)								
Volums Applied to secondary filler (mi)								

Grid	Grid Opening	Strncture	No. of SI	ructures	Dimer	nsions	ldenlification	Mineral Class		-		1 = yes, blank = no		
	John Opening	Туре	Primary	Total	Length	Width		Amptilbole	C·	NAM	Sketch/Cernmapls	Sketch	Photo	EDS
A	K6-1	M												
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	86-1	M					<u>.</u>							
B	Ke-1	M					1							
	Hol	M			<u> </u>									
	G61	M												
	F61	M												
										1.				

LA ≈ Libby-type amphibole

OA = Other (non-Libby lype) amphibole

C = Chrysolite

NAM ≈ Non-asbestos material
T:#BAQC\LishTEM\Lish Docs\Archive\TEM Count Sheet rev. I-11.x/s

#### Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

### **Equations Used for Calculations**

Area Analyzed,  $mm^2 = \#$  GO counted x Average GO Area (mm)

Concentration,  $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$ 

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



April 3, 2012

Laboratory Code:

RES

Subcontract Number: Laboratory Report:

NA

Project # / P.O. #

RES 232930-1 None Given

Project Description:

3rd West Sub - RMP

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 232930-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

# RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

## TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 232930-1

Client:

R & R Environmental

Client Project Number / P.O.:

None Given

Client Project Description: Date Samples Received:

3rd West Sub - RMP

April 2, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

1 4111		a.		
Date	San	nples	Ana	lvzed:

April	<b>3, 2</b> 0	12
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Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter
ID Number	ID Nun	ID Number		Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration	Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-033012 W	EM (	875 <b>261</b>	0.1000	768	ND	0.0050	BAS	BAS
3W-033012 N	EM 8	875 <b>262</b>	0.1000	. 770	. 1	0.0050	0.0050	10.0
3W-033012 E	EM 8	875 <b>263</b>	0.1000	. 770	ND	0.0050	BAS	BAS
3W-033012 S	EM 8	875 <b>264</b>	0.1000	770	ND	0.0050	BAS	BAS

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity Average Grid Opening in mm² = 0.010 Effective Filter Area = 385 sq mm

#### RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

## TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number:

RES 232930-1

R & R Environmental

Client:

None Given

Client Project Number / P.O.: Client Project Description:

3rd West Sub - RMP

Date Samples Received:

Analysis Type:

April 2, 2012

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

April 3, 2012

Client ID Number	Lab ID Nu	ımber	Asbestos Mineral	Asl	oestos Str	ucture Typ	es*	Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for
				Fibers	Bundles	Clusters	Matrices			Concentration
3W-033012 W	EM	875261	ND	0	0	0	0	0	0	. 0
3W-033012 N	EM	875 <b>262</b>	Chrysotile	0	1	. 0	0	1	0	1
3W-033012 E	EM	875 <b>263</b>	ND	0	0	0	0	0	0	. 0
3W-033012 S	· EM	875264	ND	. 0	0	0	0	0	0	0

^{*}See Analytical Procedure for definitions

^{**}C = Excluded from total due to lack of confirmation

^{**}L = Excluded from total for length less than 0.5 micron (AHERA only)

^{**}A = Excluded from total due to incorrect aspect ratio

ND = None Detected

Due Date: <u>4-3-17</u> Due Time: <u>9:40</u>

# RESERVOIRS ENVIRONMENTAL. INC... 5501 | ogan St. Denver, CO 80216 • Ph; 303 864-1986 • Fax 303-477-4275 • Toll Free :868 Resil-eNV Pagor: 303-509-2098

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	apply	for afteniours, weekends and	I holidays.**			Short report,	ફ્ર≌	8	Total,	Ana LP.	ORGANICS - METH	Salmonella: +/- E.coli O157:H7:	7	Aerobic Plate Count E.coli: +/- or Qua	2	; 💠	¥ 8	2	Samole Volume (L) / Area	윤	2						The
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						•	· 🕏		, a	METALS RCRA 8,	SA C	N W	į	Aerob E.coli	3	Y& N	₹ .	Ē	Samole V (L) / Area	Matrix	ĕ	Date Collected	. 1	ected	1	Use Only)	
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2 3W	-033012N						<u> </u>												770		: :	<u> </u>	44	11.1.1	1.1 27	(07	
3 3W	033012 E														Ш	1			770	Ш	_ .					63	3
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NOTE: F	REI will analyza incoming samples as indicated on this Chain of Cust	based upon information received lody shall constitute an analytical	and will not be respon	nsible for errors or omiss	ions in ca	alculatio	ns resi	ulting fro	om th	a inaccu yment te	racy of	origin	nal dat ult in a	a. By:	igning month	client	comp	any rep urcharg	resentative a.	agra	es that	submission	of the folk	owing san	nples for re	quested	
		= 1		FedEx				Date			zk	7								nnic	Cond	ition	On Ice		ealed	line.	
	ished By: //carc	my programme				٠//>		Date	HIM	16;		-1-2							_	nple np. (I			Yes / No		ealeu es/No	Yes N	lo
Received E		2/	Date/Tir	me: 4-2-12	9:0	4O				Carrier	-4			_	···				i	<u>,                                     </u>			·			<u> </u>	<u>-</u>
Results:	Contact	Phone Email Fax	Date	Time	Initia	als	_	ntact						tiail		·			Date <	43	72		ime $l$	<i>ι</i> =	tnijk		
	Contact	Phoite Email Fax	Dale	Time	Initia	als	Co	nlact			F	hon	e Er	nail	Fax				Date			T	lme		Initia	ıls	

# Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

# Asbestos Type

## Structure Types

A = Am	nosite	F =	Fiber
An = An	thophyllite	$\mathbf{B} =$	Bundle
C = Ch	rysotile	C =	Cluster
Cr = Cro	ocidolite	<b>M</b> =	Matrix
T = Tre	emolite		

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

# Sizing Conversion

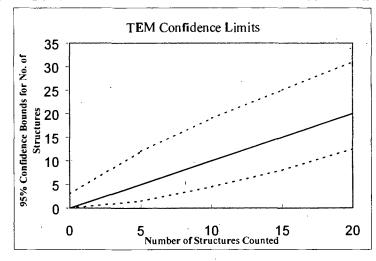
1 length unit = 5 mm on screen = 0.278 micron

1.80 length units = 0.5 micron 18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

## **TEM Analysts**

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

#### Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX NS
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	. •

TEM ASDESIOS STRUCTURE COUNT							
Client:	Rar						
Sample Type (A=Alr, D=Dust):	A						
Air volume (L) or dust area (cm2)	770						
Date received by lab	4-2-12						
Lab Job Number:	232930						
Lab Sample Number:	875262						

Analyzed by	AH
Anahsis date 4/2	84-2-12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Ahera
Grid storaga location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps	Only):	
Fraction of primary filter used		
Total Resuspension Volumo (mi)	1.	
Volums Applied to secondary filter (mf)		 

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class				1 = v	es, blank	= no
Olid	Grid Opening	Туре	Primary	Total	Lenoth	Width	ideriblication	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K4-(	M												
	144	5						•						
	H4-1	M		Piec	A: 7	0 %	ntact	5-7%	dek	on S				
	64-4	DV		Pila	B~	Pied	4							
	64-1	an			·				·					
B	L5-1	M												
-	145-1	M												
	H5-1	M					·							
	65-1	1		1										
	Fs-l	M												

#### Reservoirs Environmental, inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (V S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid ooening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	

Rar
A
770
4-2-12
232930
875263

F-Factor Calculation (Indirect Preps	Only):
Fraction of primaly filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	AH
Analysis date	4-2-12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	· D
Counting rules (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	ructures	Dime	nsions	Identification	Institution Mineral Class				1 = yes, blank = no			
Gild	Grid Opening	Туре	Primary	Total	Length	Width	identification	Amphibole	С_	NAM	Sketch/Comments	Sketch			
A	64-4	ND		•						·					
	F4-4	25						`							
	EY-	25		Pro	pA:	70%	intac	+ 5%	def	on S					
	E4-1	2			B; 8	200	start	5/4 d	lebr	5		!			
	4-4	5									/				
B	K5-3	[2]		•			_	•							
- : -	H5-3	750							X	7					
·	65.3	12													
·	FS-3	B		1	30	5	حي		~					_	
	ES3	ay							•						

# Reservoirs Envirorimental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instmment	JEOL 100 CX N
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid openina area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	Rar
Sample Type (A=Air, D=Dust):	A
Air yolume (L) or dust area (cm2)	770
Date received by lab	4-2-12
Lab Job Number:	232936
Lab Sample Number:	875264

F-Factor Calculation (Indirect Preps	Only):	 
Fraction of primary filter used		
Total Resuspension Volume (ml)	Ī	
Volume Applied to secondary filter (ml)		-

Analyzed by	AH
Analysis date	4-2-12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	· D
Counting rules (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Dale Anaiyzed

Grid	Grid Opening	Structure	No. of Structures		Dime	nsions	Identification	Mineral Class			Sketch/Comments	1 = y	es, blank	= no
Gild		Туре	Primary	Total	Length	Width	identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	454	M			·		<u>.</u>							
	65-4	MD												, 
	F5-1	MD		Pie	A:	75%	intac	x 5%	l Je	2605				,
	25-4	M		Pie		P12/	4							
	C5/	7												
B	H4-3	7						•						
- '	64-6	M						<u> </u>	·	•				
	F4-6	MD			X									
	E4-6	( <u>\r</u> )					2.5			,	,			
	C4-10	ND			•						·			

# Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX/N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: tL=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Туре	·

RAR
A
768
4-2-12
232930
875261

Analyzed by	TB
Analysis date	4/3/12
Melhod (D=Direct, I=Indirect, IA=Indirect, ashed)	1.7
Counting rules (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (indirect Preps Only):								
Fraction of primary filter used								
Total Resuspension Volume (ml)								
Volume Applied to secondary filter (ml)								

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class				1 = ye	es, blank	= no
	Grid Opening  K4-1  1+4-1  G14-1  F4-1  E4-1  (33-6)	Туре	Primary	Total	Length	Width		Amphibole		NAM	Sketch/Comments	Sketch	Photo	EDS
A	K4-1	ND			· 								<u>.                                    </u>	
,	1+4-1	ND			Pa	5 A	90%	or fruit	5	% del	on S			
	(14-1	ND			Pus	B	80 %	about	5	/s de	1 /			
	1	ND						4						
	1 ' '	$\sim$						1B 4	13/12					
B	63-6	ND				÷ 			/ /					
	F3-6	MD									.`			
	E3-6	ND												
	C3-6	ND					į							
	1336	MD					·							

# **Analytical Procedures - AHERA**

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

#### **Equations Used for Calculations**

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration,  $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$ 

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening